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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/919,850	08/02/2001	Hiroyuki Tomita	862.C2323	5660

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NEW YORK, NY 10112

EXAMINER

FRANK, ELLIOT L

ART UNIT	PAPER NUMBER
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2125

DATE MAILED: 06/17/2003

Please find below and/or attached an Office communication concerning this application or proceeding.

**Office Action Summary**

Application N .

09/919,850

Applicant(s)

TOMITA, HIROYUKI

Examiner

Elliot L Frank

Art Unit

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --  
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☒ Responsive to communication(s) filed on 02 August 2001 .
- 2a) ☐ This action is **FINAL**.                      2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☒ Claim(s) 1-17 is/are pending in the application.
- 4a) Of the above claim(s) 11-17 is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-10 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☒ Claim(s) 1-17 are subject to restriction and/or election requirement.

**Application Papers**

- 9) ☒ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 02 August 2001 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) ☐ The proposed drawing correction filed on \_\_\_\_\_ is: a) ☐ approved b) ☐ disapproved by the Examiner.
- If approved, corrected drawings are required in reply to this Office action.
- 12) ☐ The oath or declaration is objected to by the Examiner.

**Priority under 35 U.S.C. §§ 119 and 120**

- 13) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All   b) ☐ Some \*   c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_ .
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- \* See the attached detailed Office action for a list of the certified copies not received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).
- a) ☐ The translation of the foreign language provisional application has been received.
- 15) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

**Attachment(s)**

- 1) ☒ Notice of References Cited (PTO-892)                      4) ☐ Interview Summary (PTO-413) Paper No(s). \_\_\_\_\_
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)                      5) ☐ Notice of Informal Patent Application (PTO-152)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449) Paper No(s) \_\_\_\_\_                      6) ☐ Other: \_\_\_\_\_

**DETAILED ACTION**

***Priority***

1. Receipt is acknowledged of papers submitted under 35 U.S.C. 119(a)-(d), which papers have been placed of record in the file.

***Election/Restrictions***

2. Restriction to one of the following inventions is required under 35 U.S.C. 121:
  - I. Claims 1-10, drawn to a lens assembly for an semiconductor exposure device, classified in class 355, subclass 30.
  - II. Claims 11-17, drawn to a remote maintenance management system for a semiconductor process device, classified in class 700, subclass 108.

3. The inventions are distinct from each other for the following reasons:

Inventions I and II are related as subcombinations disclosed as usable together in a single combination. The subcombinations are distinct from each other if they are shown to be separately usable.

In the instant application, invention I has separate utility as a specific component in a semiconductor process apparatus. Claim group 1 defines a gas-filled lens assembly including the specific elements of its construction and operation. Invention II per page 20, line 2 of the instant application is generally applicable to any semiconductor process system as a computerized method for retrieving and managing maintenance information. Inventions I and II do not specifically require

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each other, and would require searches in different technology areas. See MPEP § 806.05(d).

4. During a telephone conversation with Mr. Steven Warner, #33,326, on 11 June 2003 a provisional election was made with traverse to prosecute the invention of group I, claims 1-10. Affirmation of this election must be made by applicant in replying to this Office action. Claims 11-17 are withdrawn from further consideration by the examiner, 37 CFR 1.142(b), as being drawn to a non-elected invention.

### ***Specification***

5. The disclosure is objected to because of the following informalities:

- a. Page 1, line 22: It is suggested that the phrasing be revised for clarity as follows: "For this reason, there is a high probability of the optical elements becoming contaminated."
- b. Page 8, line 22-page 1, line 1: The text is awkward and requires revision.
- c. Page 15, line 22: There is no item 4B in figure 1 as indicated in the specification.

Appropriate correction is required.

### ***Claim Rejections - 35 USC § 102***

6. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

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(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

7. Claims 1,5,9 and 10 rejected under 35 U.S.C. 102(e) as being anticipated by  
Magome et al. (US 2002/0145711 A1).

The limitations of the aforementioned claims, and the applicable citations in  
Magome et al., are as follows:

1. An exposure apparatus (page 1, paragraph 0002) comprising an optical  
system having a plurality of spaces and a mechanism that fills each of the spaces  
with a gas (page 13, paragraph 0110),

wherein a gas contained at least in one of the plurality of spaces has a refractive  
index different from that of a gas contained at least in one of the remaining spaces,  
(figure 4 of Magome et al. illustrates a system where pipes 31a,b provide He to  
chambers 6 and the PL of the apparatus while pipe 88 provides N<sub>2</sub> to chambers CH1  
and CH2) and

wherein a pressure of the gas at least in the one of the plurality of spaces is  
different from that of the gas at least in the one of the remaining spaces (page 13,  
paragraph 0114).

5. The apparatus according to claim 1, wherein when an influence of an index  
change rate of the gas at least in the one space on an optical characteristic of the  
optical system is larger than. an influence of an index change rate of the gas at least  
in the one of the remaining spaces on the optical characteristic of the optical system,

the pressure of the gas at least in the one space is higher than that of the gas at least on 5 the one of the remaining spaces (Page 2, paragraph 0016-0018).

9. The apparatus according to claim 1, wherein the plurality of gases with different refractive indices are helium and nitrogen (page 2, paragraph 0018).

10. The apparatus according to claim 1, wherein each of the plurality of gases with different refractive indices is a single gas or a mixture of gases of a plurality of types (page 14, paragraph 0120).

The limitations of claims 1,5,9 and 10 are read in entirety in Magome et al.

### ***Claim Rejections - 35 USC § 103***

8. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

9. Claims 2-4 and 6-8 are rejected under 35 U.S.C. 103(a) as being unpatentable over by Magome et al. (US 2002/0145711 A1) in view Tanaka et al. (US 2003/0020888 A1).

Claims 2-4 and 6-8 depend from claim 1. Claim 1 has been shown to be anticipated by Magome et al.

While Magome et al. reads on the instant invention by providing an exposure apparatus with gas filled chambers of different refractive indexes, it does not

specifically recite the additional limitations of claims 2-4 and 6-8 wherein the structures of the apparatus are described.

Tanaka et al., analogous to Magome et al. in that both are exposure apparatus systems (Tanaka, page 1, paragraph 0004), reads on the additional requirements of claims 2-4 and 6-8 as follows:

2. The apparatus according to claim 1, wherein the optical system comprises a plurality of optical elements, a holding member for holding the optical elements, and a vessel for accommodating the optical elements and the holding member, the vessel having the plurality of spaces inside (page 5, paragraph 0055).

3. The apparatus according to claim 1, wherein at least two of the plurality of spaces are adjacent to each other (figure 1, items 310 and 311).

4. The apparatus according to claim 1, wherein the pressure difference between the plurality of spaces is a small pressure difference of not more than 1,000 Pa (It would have been obvious to have provided a pressure difference not more than 1,000 Pa due to the well known effect that the gas pressure has on the optical performance of the exposure device per page 1, paragraph 0012).

6. The apparatus according to claim 2, wherein the vessel has at least one gas supply port for independently supplying the gas to each of the plurality of spaces and one gas exhaust port for exhausting the gas (figure 8, items 426a,b).

7. The apparatus according to claim 6, wherein the vessel has a closed structure having no opening portion except for the gas supply port and gas exhaust port (Pages 14-15, paragraph 0154 and figure 8).

8. The apparatus according to claim 6, characterized by further comprising a detection section for detecting an internal pressure of the vessel, and an operation section for operating the internal pressure in accordance with an output from said detection section (pages 5-6, paragraphs 0056-0057).

It would have been obvious to one of ordinary skill in the art at the time the invention was made to have included the features of Tanaka et al. into the Magome et al. system to have created an exposure apparatus that allows the pressure in an airtight chamber within the projection optical system to be adjusted after the atmosphere in the airtight chamber is replaced with a specific gas and a method of adjusting pressure in the projection optical system (Tanaka et al., page 2, paragraph 0019).

### ***Conclusion***

10. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure:

US 2002/0006561 A1 – Taniguchi – Exposure apparatus

USPN 4,690,528 – Tanimoto et al. – Exposure apparatus

USPN 5,892,572 A – Nishi – Exposure apparatus

USPN 6,267,131 B1 – Masada et al. – Pressure control device

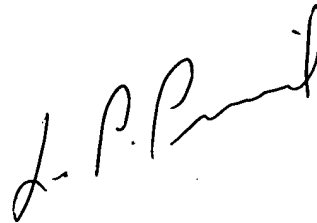
11. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Elliot L Frank whose telephone number is (703) 305-5442. The examiner can normally be reached on M-F 7-4:30, 1st Friday off.



If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Leo P Picard can be reached on (703) 308-0538. The fax phone numbers for the organization where this application or proceeding is assigned are (703) 746-7239 for regular communications and (703) 746-7238 for After Final communications.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is (703) 306-5484.

ELF  
June 11, 2003

A handwritten signature in black ink, appearing to read "L. P. Picard", written in a cursive style.

LEO PICARD  
SUPERVISORY PATENT EXAMINER  
TECHNOLOGY CENTER 2100